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AMENDMENTS TO THE CLAIMS

Listing of claims:

Claims 1 – 20 (Cancelled)

21. (Previously presented): method of manufacturing a semiconductor device, the method comprising:

forming a first layer of high thermal conductivity material on a back side of a semiconductor substrate;

forming a hole through the first layer of high thermal conductivity material and the semiconductor substrate;

forming a via in the hole;

forming a first device overlaying the layer of high thermal conductivity material on the back side of the semiconductor substrate and in electrical connection with the via;

forming a second layer of high thermal conductivity material overlying the first device; and

forming a second device on a front side of the semiconductor substrate and in electrical connection with the via.

22. (Previously presented): The method of claim 21 further comprising:

coupling a thermal solution to the second layer of high thermal conductivity material.

23. (Previously presented): The method of claim 22 wherein the thermal solution comprises a heat sink and coupling the heat sink to the second layer of high thermal conductivity material comprises placing a layer of thermal interface material between the heat sink and the second layer of high thermal conductivity material.

24. (Previously presented): The method of claim 21 wherein forming the first device comprises:

forming an anode and a cathode, and the first device comprises a capacitor.

25. (Previously presented): The method of claim 24 wherein forming the anode and the cathode comprises:

fabricating the anode and the cathode to each have a plurality of fingers interlaced with fingers of the other.

26. (Previously presented): The method of claim 24 wherein forming the anode and the cathode comprises:

forming the anode as a plate and forming the cathode as a plate, one of the plates overlying the other; and

forming a middle layer of high thermal conductivity material between the plates.

27. (Previously presented): The method of claim 21 wherein the high thermal conductivity material comprises diamond.

28. (Previously presented): The method of claim 27 wherein forming the layers of diamond comprises chemical vapor deposition.

29. (Previously presented): The method of claim 21 further comprising, after forming the second layer of high thermal conductivity material and before forming the second device on the front side:

reducing a thickness of the semiconductor substrate.

30. (Previously presented): The method of claim 21 wherein:

forming the hole comprises forming a plurality of holes;

forming the via comprises forming a plurality of vias in respective holes; and

forming the first device comprises forming a plurality of devices in electrical connection with respective subsets of the vias.

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31. (Previously presented): The method of claim 21 wherein forming the first device comprises:

fabricating a spiral inductor.

32. (Previously presented): The method of claim 21 wherein forming the first device comprises:

fabricating a resistor.

33. (Previously presented): The method of claim 21 wherein the high thermal conductivity material has a thermal conductivity greater than 150W/mK.

34. (Previously presented): The method of claim 33 wherein the high thermal conductivity material has a thermal conductivity greater than 2000W/mK.

35. (Previously presented): The method of claim 33 wherein the high thermal conductivity material has an electrical resistivity greater than 1E9Ω-cm.

36. (Previously presented): The method of claim 35 wherein the high thermal conductivity material has a thermal conductivity greater than 2000W/mK.

37. (Previously presented): The method of claim 36 wherein the high thermal conductivity material has an electrical resistivity greater than 1E15Ω-cm.

Claims 38-45 (Cancelled)

46. (Previously presented): An article of manufacture comprising:

a machine-accessible medium including data that, when accessed by a semiconductor fabrication factory, cause the semiconductor fabrication factory to perform the method of claim 21.

47. (Previously presented): The article of manufacture of claim 46 wherein the machine-accessible medium further includes data that cause the semiconductor fabrication factory to perform the method of claim 24.

48. (Previously presented): The article of manufacture of claim 47 wherein the machine-accessible medium comprises a recording medium.

49. (Previously presented): The article of manufacture of claim 47 wherein the machine-accessible medium comprises a carrier wave.